IN THE CLAIMS

Please cancel all claims and add new Claims 40-64

40. A system for suppressing RF ambient signals from a signal containing both RF radiated emissions of an electronic device and RF ambient signals, the system comprising:

a first RF sensor operative to receive primarily ambient RF signals and radiated RF emissions from the electronic device and in electrical communication with a first RF receiver adapted to receive from said first RF sensor both ambient the RF signals and the radiated RF emissions;

said first RF receiver being operative to demodulate and digitize the received ambient RF signals and the received radiated RF emissions;

a second RF sensor operative to receive primarily ambient RF signals, and in electrical communication with a second receiver adapted to receive from said second RF sensor the ambient RF signals;

said first and said second receivers adapted to demodulate and digitize the ambient RF signals and being time and frequency synchronized to each other;

a central computer in electrical communication with said first and

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said second receivers, said central computer being operative to store and process the ambient signals and the radiated emissions from respective ones of said first and said second receivers;

wherein the central computer is configured as an adaptive filter operative to suppress the ambient RF signals correlated between the first and second receivers in order to extract the radiated RF emissions of the electronic device.

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41. The system of Claim 40 wherein the first and second RF sensors are operative to convert RF signals into corresponding voltages.

42. The system of Claim 40 wherein the first and second RF sensors are operative to convert RF signals into corresponding electrical currents.

43. The system of Claim 40 wherein the first and second RF sensors are RF antennas.

44. The system of Claim 40 further comprising:

a first telemetry link between the first RF sensor and the first RF

receiver; and

a second telemetry link between the second RF sensor and the second RF receiver.

45. The system of Claim 40 wherein the first RF receiver is co-located with the first RF sensor and the second RF receiver is co-located with the second RF sensor.

46. The system of Claim 40 wherein the first and second RF receivers are co-located within a single housing.

47. The system of Claim 40 further comprising a clock operative to generate a clock signal that synchronizes the first and second RF receivers.

48. The system of Claim 40 further comprising an optical fiber extending between and communicating with the first and second RF receivers in order to transfer the clock signal therebetween.

49. The system of Claim 40 further comprising an electrically conducting cable, extending between and communicating with the first and second RF receivers, in order to

transfer the clock signal therebetween.

50. The system of Claim 40 wherein the second RF receiver comprises a plurality of RF receivers operative to receive primarily the ambient signals.

51. The system of Claim 40 wherein the first RF receiver comprises a plurality of RF receivers operative to receive the ambient signals and the radiated emissions from the electronic device.

52. The system of Claim 40 further comprising:

a first clock in electrical communication with the first RF receiver; and

a second clock in electrical communication with the second RF receiver;

wherein the first clock and the second clock are synchronized in order to synchronize the first and second RF receivers.

53. The system of Claim 40 wherein the first and second RF receivers are synchronized via an external RF reference signal.

54. A method of suppressing ambient RF signals from an RF signal generated by

an electronic device, said RF signal containing radiated RF emissions of said electronic device, using a first RF sensor and receiver, a second RF sensor and receiver, and an adaptive filter, the method comprising the steps of:

a) locating said first RF sensor near said electronic device to receive the RF signal therefrom, said sensor placed in electrical communication with said first RF receiver;

b) demodulating and digitizing the ambient RF signals and the radiated RF emissions with the first RF receiver;

c) locating said second RF sensor at least ten times further away from said first RF sensor than the distance from said first RF sensor to the electronic device, said sensor placed in electrical communication with said second RF receiver;

d) synchronizing the time and frequencies of the ambient signals and the radiated signals in each said first RF receiver and said second RF receiver;

e) demodulating and digitizing the ambient RF signals with the second RF receiver;

f) suppressing the ambient RF signals correlated between the first RF receiver and the second RF receiver with the adaptive filter.

55. The method of Claim 54 wherein the adaptive filter is implemented on a computer and the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals with the adaptive filter of the computer.

56. The method of Claim 54 wherein at least some of the ambient RF signals have multiple paths, and the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals having multiple paths.

57. The method of Claim 54 wherein the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals using a Gradient Descent method with the adaptive filter.

58. The method of Claim 54 wherein the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the RF ambient signals using a Stochastic Gradient method with the adaptive filter.

59. The method of claim 54 wherein the step of demodulating and digitizing the

ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals using a Least Squares method [of] with the adaptive filter.

60. The method of Claim 54 wherein the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals with a Finite Impulse Response filter.

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61. The method of Claim 54 wherein the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals with an Infinite Impulse Response filter.

62. The method of Claim 54 wherein the step of demodulating and digitizing the ambient RF signals with the second RF receiver comprises suppressing the ambient RF signals with an adaptive filter configured as a neural network.

63. The method of Claim 54 wherein the first and second RF receivers are synchronized via a common clock.

64. The method of Claim 54 wherein the first and second RF receivers are synchronized via an external RF reference signal.